

## SHORT COMMUNICATION

***Eremophila buirchellii* and *E. calcicola* (Scrophulariaceae), two new species from Western Australia**

Two new species of *Eremophila* R.Br. are described and illustrated herein. Their relationships with related species and conservation status is also discussed.

***Eremophila buirchellii*** A.P.Br., *sp. nov.*

*Type:* Mount Augustus, Western Australia [precise locality withheld for conservation reasons], 31 July 2009, B. Buirchell BB 205 (*holo:* PERTH 08527687).

*Eremophila* sp. Mt Augustus (B. Buirchell BB 205), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed January 2016].

*Illustrations.* A.P. Brown & B.J. Buirchell, *A Field Guide to the Eremophilas of W. Austral.*, p. 306 (2011) [as *E. sp.* Mt Augustus].

An erect, much-branched shrub, 1–2 m high, 0.8–1.2 m wide. *Branches* grey, terete, sparsely tuberculate, old and young parts with dense, grey-white dendritic hairs. *Leaves* grey to grey-green, alternate, spreading or reflexed, clustered at ends of branches; lamina oblanceolate, (6–)10–23 mm long, 2.5–5 mm wide, the upper and lower surfaces with dense, grey-white dendritic hairs; apex acute to acuminate; margin entire; petiole 1–2 mm long, bases persistent. *Flowers* 1 per axil; pedicel terete, slightly curved, 4–7 mm long, with grey-white dendritic hairs. *Sepals* 5, valvate, oblanceolate, subequal, prominently splayed outwards, 7–10 mm long, 3–4 mm wide, not enlarging after flowering; outer surface grey-green to burgundy, with dense, grey-white dendritic hairs; inner surface grey-green to burgundy, with dendritic hairs in the distal third, glabrous below except along margins. *Corolla* slightly zygomorphic, broadly campanulate, 8–12 mm long, 9–14 mm wide; outer and inner surface sub-glabrous with rare, scattered glandular hairs; tube pink or pinkish white, unspotted; lobes pink or pinkish white, unspotted, subequal, spreading. *Stamens* 4, slightly exserted and evenly distributed rather than in a single cluster; filaments glabrous; anthers glabrous. *Ovary* ovoid, 2–3 mm long, 1.2–1.5 mm wide, glabrous; style 13–16 mm long, glabrous. *Fruit* not seen. (Figure 1)

*Diagnostic features.* *Eremophila buirchellii* can be distinguished from other members of the genus by the following combination of characters: erect habit (up to 2 m high at maturity); branches, leaves and outer sepal surfaces with dense, grey-white dendritic hairs; prominently splayed grey-green to burgundy sepals; pink or pinkish white, unspotted, broadly campanulate corolla and slightly exserted evenly distributed stamens.

*Other specimen examined.* WESTERN AUSTRALIA: [locality withheld for conservation reasons] 4 July 1998, B. Buirchell BB 70 (PERTH).

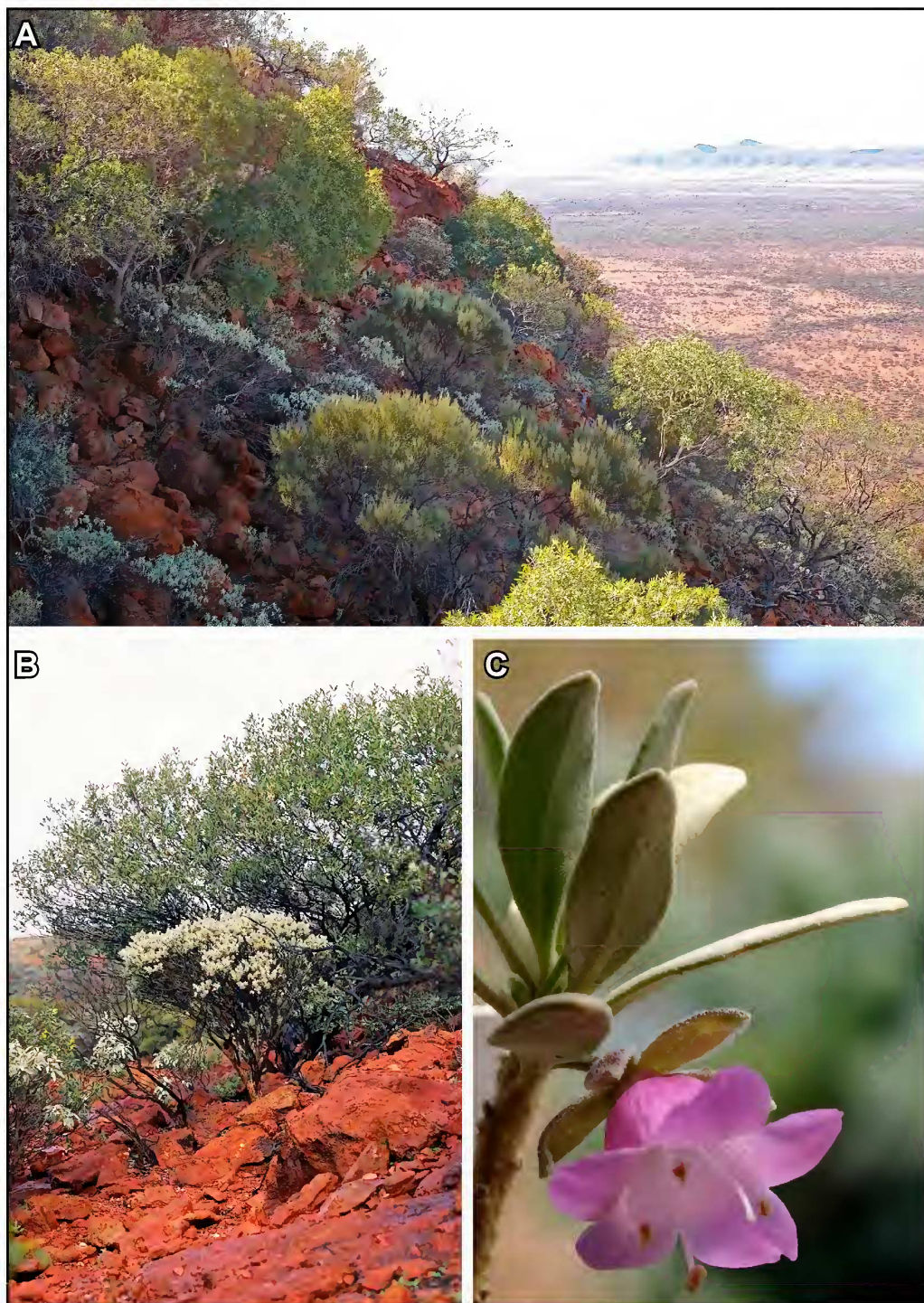


Figure 1. *Eremophila buirchellii*. A – habitat; B – plant showing the grey to grey-green foliage and erect habit of the species; C – flower showing the oblanceolate, subequal sepals and broadly campanulate, pink or pinkish white, unspotted corolla. Photographs by B. Buirchell.

*Distribution and habitat.* Confined to Mt Augustus in the Gascoyne bioregion (Department of the Environment 2013), where it grows on steep rocky slopes with *Acacia* and *Eucalyptus* spp., *Eremophila latrobei* and native grasses.

*Phenology.* Predominantly flowers from June to August.

*Conservation status.* Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Eremophila* sp. Mt Augustus (B. Buirchell BB 205). The species is confined to Mount Augustus National Park where it comprises two populations a few hundred metres apart, together totalling c. 50 plants.

*Etymology.* Named in honour of Dr Bevan Buirchell who discovered the species in 1998 and who has contributed greatly to the understanding of *Eremophila* in Western Australia through many years of intensive field and herbarium studies.

*Affinities.* *Eremophila buirchellii* belongs to *E.* sect. *Eriocalyx* Benth., which comprises 30 species, 24 of which are endemic to Western Australia. Within this section, *E. buirchellii* appears most closely related to *E. forrestii* F.Muell. and is a similarly much-branched shrub to 2 m high with branches, leaves and outer sepal surfaces covered with dense, grey-white dendritic hairs. It differs, however, in its leaves clustered at ends of branches (scattered in *E. forrestii*), its broadly campanulate, sub-glabrous, unspotted corolla (tubular and sparsely to densely pubescent and faintly to prominently spotted in *E. forrestii*) and its glabrous staminal filaments (pubescent in *E. forrestii*). Although these species occur near one another no apparent hybrids have been found.

*Eremophila buirchellii* appears more distantly related to *E. latrobei* F.Muell. and like that species is an erect, much-branched shrub with leaves clustered at the ends of branches. It differs, however, in its dendritic leaf hairs (stellate, glandular or glabrescent in *E. latrobei*), its dendritic sepal hairs (absent or stellate in *E. latrobei*), its broadly campanulate, sub-glabrous corolla (tubular and sparsely glandular hairy in *E. latrobei*) and its prominently spreading subequal corolla lobes (scarcely spreading and unequal in *E. latrobei*). Although these species are sympatric on the slopes of Mt Augustus they are not known to intergrade and no apparent hybrids have been found.

The only other species in *E.* sect. *Eriocalyx* that occurs near *E. buirchellii* is *E. conferta* Chinnock, which is readily distinguished from *E. buirchellii* by its lilac to pale purple corolla.

***Eremophila calcicola*** R.W.Davis, *sp. nov.*

*Type:* [Buraminy] Western Australia [precise locality withheld for conservation reasons], 1 May 2004, R. Davis RD 10665 (*holo:* PERTH 06770770; *iso:* CANB).

*Eremophila* sp. Parmango Road (J. Start D5-46), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed January 2016].

*Illustrations.* A.P. Brown & B.J. Buirchell, *A Field Guide to the Eremophilas of W. Austral.*, p. 312 (2011) [as *E.* sp. Parmango Road].

A low, compact shrub, 0.25–0.8(–1) m high, 0.6–2 m wide. *Branches* green-brown, terete to slightly flattened, not viscid, with sparse glandular hairs and white stellate hairs. *Leaves* bright green, alternate,



ascending to slightly spreading, not clustered at ends of branches; lamina elliptical to oblanceolate, 20–80 mm long, 3–15 mm wide, glabrescent, with rare scattered glandular hairs and white stellate hairs, mostly on leaf margins; apex acuminate; margin entire; petiole absent. *Flowers* 1 per axil; pedicel terete, sigmoidally curved, 14–17 mm long, with scattered glandular hairs and white stellate hairs. *Sepals* 5, imbricate, triangular, subequal, splayed slightly outwards, lateral lobes slightly larger and broader, 3.8–5.3 mm long, 1.2–1.6 mm wide, not enlarging after flowering; outer surface green, with sparse glandular hairs and white stellate hairs; inner surface green, with scattered glandular hairs. *Corolla* strongly zygomorphic, bilabiate, 14–19 mm long, 5.3–5.6(–6) mm wide; outer surface subglabrous with scattered glandular hairs and sparse stellate hairs on upper corolla lobes; inner surface with a few, scattered glandular hairs; tube green, unspotted with a dark purple-brown tip in bud; lobes green, unspotted, unequal, recurved. *Stamens* 4, prominently exerted, paired and attached at the base of the lateral portions of the tube; filaments with sparse glandular hairs; anthers glabrous. *Ovary* ovoid, 2–3 mm long, 1.1–1.3 mm wide, glabrous; style 30–33 mm long, glabrous. *Fruit* globose, 4.2–4.4 mm long, 4.4–4.6 mm wide, glabrous. (Figure 2)

*Diagnostic features.* *Eremophila calcicola* can be distinguished from other members of the genus by the following combination of characters: low-growing habit (usually less than 0.8 m high at maturity); branches with glandular and stellate hairs; large, bright green, glabrescent leaves, lamina 20–80 mm long, 3–15 mm wide; terete, sigmoidally curved pedicel; imbricate, triangular, subequal sepals; green, strongly zygomorphic corolla and prominently exerted stamens.

*Other specimens examined.* WESTERN AUSTRALIA: [localities withheld for conservation reasons] 2 Oct. 2003, B. Archer 2402 (MEL, PERTH); 4 July 2006, R. Davis RD 11107 (PERTH); 28 Sep. 2003, J. Start D5-46 (PERTH).

*Distribution and habitat.* Found south of Balladonia in the Mallee bioregion (Department of the Environment 2013), growing on calcareous sandy loams in open Mallee woodlands.

*Phenology.* Predominantly flowers from May to October.

*Conservation status.* Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Eremophila* sp. Parmango Road (J. Start D5-46). There are four collections of this species lodged in PERTH, three of which were made within a few hundred metres of each other on road reserve and adjacent Unallocated Crown Land. The fourth collection was made some 34 km south-west of the other collections in a rolled fire break on the edge of Clyde Hill Nature Reserve.

*Etymology.* From the Latin *calx* (lime or limestone) and *-cola* (-dweller), in reference to its preference for calcareous soils.

*Affinities.* *Eremophila calcicola* belongs to *E.* sect. *Stenochilus* (R.Br.) F.Muell., which comprises 13 species, eight of which are endemic to Western Australia. Within this section, *E. calcicola* appears most closely related to *E. decipiens* Ostenf. and has a similarly terete, long, sigmoidally curved pedicel, imbricate, triangular, subequal sepals, a strongly zygomorphic corolla and prominently exerted stamens. It differs, however, in its non-resinous vegetative and floral parts (distinctly resinous in *E. decipiens*), its bright green, glabrescent, usually larger leaves 20–80 mm long  $\times$  3–15 mm wide (glandular-pubescent to stellate-pubescent and 15–46 mm long  $\times$  1.5–8.8 mm wide in *E. decipiens*), its green corolla (green-red when immature, maturing to red or red-orange in *E. decipiens*) and its



Figure 2. *Eremophila calcicola*. A – plants one year post-fire showing the bright green leaf colour and compact, low-growing habit of the species; B – flower showing the triangular, subequal sepals and zygomorphic, green, subglabrous corolla. Photographs by A. Brown (A) and J. and J. Start (B).

inner corolla surface with a few scattered glandular hairs (glandular-pubescent in *E. decipiens*). It also differs in being a short-lived perennial (*E. decipiens* is a long-lived perennial). Although these species are sympatric they are not known to intergrade and no apparent hybrids have been found.

Other species in *E. sect. Stenochilus* that occur with or near *E. calcicola* are *E. denticulata* F.Muell., *E. glabra* (R.Br.) Ostenf. and *E. subfloccosa* Benth. *Eremophila calcicola* may be distinguished from *E. denticulata* by its low, spreading habit 0.25–0.8(–1) m high (*E. denticulata* is a taller, more erect species 1–3 m high) and green, rather than red or pink flowers. From *E. glabra* and *E. subfloccosa*, *E. calcicola* may be distinguished by its long, sigmoidally curved pedicel.

*Notes.* *Eremophila calcicola* is a low-growing, short-lived perennial shrub, germinating from soil-stored seed in response to physical disturbance and wildfires.

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